

DAFTAR PUSTAKA

- Abosadiya, H.M., Hasbullah, S.H., Mackeen, M.M., Low, S.C., Ibrahim, Z., Koketsu, M., and Yamin, B.M., 2013, Synthesis, Characterization, X-ray Structure and Biological Activities of C-5-Bromo-2-hydroxyphenilcalix[4]-2-methylresorcinarene, *Molecules*, 18, 13369-13384.
- Aini, N., Purwono, B., and Tahir, I., 2007, Structure-Antioxidant Activities Relationship Analysis of Isoeugenol, Eugenol, Vanilin, and Their Derivates, *Indones. J. Chem.*, 7(1), 61-66.
- Andarwulan, N., Wijaya, C. H., dan Cahyono, D. T., 1996, Aktivitas Antioksidan Daun Sirih, *Buletin Teknologi dan Industri pangan*, VII (1), 6-9.
- Armala, M.M., 2009, Daya Antioksidan Fraksi Air Ekstrak Herba Kenikir (*Cosmos caudatuc* H.B.K) dan Profil KLT, *Skripsi*, Fakultas Farmasi UII, Yogyakarta.
- Boyd, A.S., Naylor, M., Cameron, G.S., Pearse, A.D., Gaskell, S.A., and Neldner, K.H., 1995, The effects of Chronic Sunscreen Use on the Histologic Changes of Dermatoheliosis, *J. Am. Acad. Dermatol.*, 33, 941-946.
- Budiana, I.G.N., 2015, Sintesis Seri Benzoat-Sinamat Kaliks[4]resorsinarena serta Uji Aktivitasnya sebagai Tabir Surya dan Adsorben Cr(III), Pb(III), dan Cd(II), *Disertasi*, Departemen Kimia FMIPA UGM, Yogyakarta.
- Carey, S.J.J., 2006, The Synthesis and Medicinal Applications of Pyrogallol[4]arenes, *Dissertation*, Dublin City University, Dublin.
- Chawla, H.M., Pant, N., Kumar, S., Mrig, S., Srivastava, B., Kumar, N., and Black, D.StC., 2011, Synthesis and Evaluation of Novel Tetrapropoxycalix[4]Arene Enone and Cinnamates for Protection from Ultraviolet Radiation, *J. Photochem. Photobiol. B: Biol.*, 105, 25-33.
- Clarkson, P. M., Thompson, H. S., 2000, Antioxidants: What Role Do They Play in Physical Activity and Health, *J. Clin Nutr. Biochem.*, 72, 637S-46S.
- Coppen, P.P., 1983, *The Use of Antioxidants. In: Rancidity in Foods*, J.C., Allen, R.J., Hamilton (Eds.), Applied Science Publisher, London and New York.
- Dalimartha, S., dan M., Soedibyo, 1999, *Awet Muda dengan Tumbuhan Obat dan Diet Suplemen*, Trubus Agriwidya, Jakarta
- de Gruijl, F.R., 2002, Photocarcinogenesis: UVA vs. UVB Radiation, *Skin. Pharmacol. Appl. Skin. Physiol.*, 15, 316-320.

- Denmark, S.E., and Beutner, G.L., 2008, Lewis Base Catalysis in Organic Synthesis, *Angew, Chem, Int. Ed.*, 47, 1560-1638.
- Dondi, D., Albini, A., and Serpone, N., 2006, Interactions between Different Solar UVB/UVA Filters Contained in Commercial Suncreams and Consequent Loss of UV Protection, *Photochem. Photobiol. Sci.*, 5, 835-843.
- Duale, N., Olsen, A., Christensen, T., Butt, S., and Brundborg, G., 2010, Octyl methoxy cinnamate Modulates Gene Expression and Prevents Cyclobutane Pyrimidine Dimer Formation but not Oxidative DNA Damage in UV-Exposed Human Cell Lines, *Toxic. Sci.*, 114, 272-279.
- Durairaj, R.B., 2005, *Resorcinol: Chemistry, Technology and Applications*, Springer-Verlag Berlin, Heidelberg
- Gaspar, L.R., and Campos, P.M.B.G.M., 2006, Evaluation of Photostability of Different UV Filter Combination in A Sunscreen, *Int. J. Pharm.*, 307, 123-128.
- Gordon, M. H., 1990. *The Mechanism of Antioksidants Action in Vitro*. In: Hudson, B.J.F., (ed), *Food Antioksidants*, Elsevier Applied Science, London.
- Gutsche, D.C., 1998, *Calixarenes Revisited, Monograph In Supramolecules Chemistry*, The Royal Society of Chemistry, Washington.
- Gutsche, D.C., Dhawan, B., No, H.H., and Muthukrishnan, R., 1981, Calixarene 4. The Synthesis, Characterization, and Properties of Calixarenes from *p*-tert-butylphenol, *J. Am. Chem. Soc.*, 103, 3782-3786.
- Gutteridge, J.M.C., and Halliwell, B., 1994, *Antioxidants in Nutrition, Health and Disease*, Oxford University Press, Oxford, UK
- Hagedorn-Leweke, U., and Lippold, B.C., 1995, Absorption of Sunscreens and Other Compounds through Human Skin in vivo: Derivation of a Method to Predict Maximum Fluxes, *Pharm. Res.*, 12(9), 1354-1360.
- Hamilton, K., 1995, Synthesis, Characterization, and Application of Water Soluble Chiral Calix[4]arene Derivates in Spectroscopy and Capillary Electrokinetic Chromatographi, A. *Dissertation*, B.S., Southern University and A.R.M. College, 1-6.
- Harizal, 2015, Sintesis C-4-alkoksifenilkaliks[4]pirogololaril Benzoat-Sinamat sebagai Senyawa Tabir Surya, *Tesis*, Departemen Kimia FMIPA UGM, Yogyakarta.
- Hasbullah, A., Abosadiya, H.M., Jumina, J., Tahir, M.I.M., and Yamin, B.M., 2013, Synthesis, Structural and Antioxidant Properties of

- C-*p*-methoxycalix[4]resorcinarene, *Int. J. Advan. Sci. Eng. Inform. Tech.*, 3(2), 36-39.
- Herzog, B., Wehrle, M., and Quass, K., 2009, Photostability of UV Absorber Systems in Sunscreens, *Photochem, Photobiol.*, 85, 869-878.
- Ikhtiyati, N., 1998, Peranan Tabir Surya dalam Pencegahan Timbulnya Mutan pada biakan fibroblast yang mendapat pajanan sinar ultra violet B, *Tesis*, FK Universitas Gadjah Mada, Yogyakarta.
- Indarto, I., 2013, Sintesis Senyawa Tabir Surya Turunan Kaliks[4]Resorsinarena Seri Benzofenon dan Sinamat dari *p*-Anisaldehida, *Tesis*, Departemen Kimia FMIPA UGM, Yogyakarta.
- Jiang, R., Roberts, M.S., Collins, D.M., and Benson, H.A.E., 1999, Absorption of Sunscreens Across Human Skin: An Evaluation of Commercial Products for Children and Adults, *Br. J. Clin. Pharmacol.*, 48, 635-637
- Kazakova, E.K., Makarova, N.A., Ziganshina, A.U., Liya A. Muslinkina, L.A., Muslinkin, A.A., and Habicher, W.D., 2000, Novel Water-Soluble Tetrasulfonatomethylcalix[4]resorcinarenes, *Tetrahedron Lett.*, 41, 10111-10115.
- Kikuzaki, H., Hisamoto, M., Hirose, K., Akiyama, K., and Taniguchi, H., 2002, Antioxidant Properties of Ferulic Acid and Its Related Compounds, *J. Agric. Food Chem.*, 50(7), 2161-2168.
- Kunsagi-Mate, S., Szabo, K., Lemli, B., Bitter, I., Nagy, G., and Kollar, L., 2004, Increased Complexation Ability of Water-Soluble Calix[4]resorcinarene Octacarboxylate toward Phenol by the Assistance of Fe(III) Ions, *J. Phys. Chem. B.*, 108, 15519-15522
- Liardet, S., Scaletta, C., Panizzon, R., Hohlfeld, P., and Laurent-Applegate, L., 2001, Protection Against Pyrimidine Dimers, p53, and 8-hydroxy-2 β -Deoxyguanosine Expression in Ultraviolet Irradiated Human Skin by Sunscreen: Difference Between UVB + UVA and UVB Alone Sunscreen, *J. Invest. Dermatol.*, 7, 3607-3614.
- Lingga, L., 2012, *The Healing Power of Antioxidant: Mengenal Lebih Jauh Sumber Antioksidan Unggulan*, Elex Media Komputindo, Jakarta.
- Maerz, A.K., 2011, Synthesis and Characterization of Host-Guest Complexes: Metal-Organic Nanocapsules Using Aryl-Substituted Pyrogallol[4]arenes, *Dissertation*, University of Missouri-Columbia, Columbia
- Manai, E.B., Kaminski, R.C.K., Marcos Antonio Correal, M.A., Chiavaccil, L.A., 2013, Inorganic UV filters, *Braz. J. Pharm. Sci.* 49(2), 201-209.

- Mohan Mac., Malley, S.O., and Nolan, K., 2003, *Important Calixarene Derivates-Their Synthesis and Application*, ARKIVOC, 7, 23-24.
- Molyneux, P., 2004, The Use of Stable Free Radical Diphenylpicrylhydrazyl (DPPH) for Estimating Antioxidant Activity, *J. Sci. Technol.*, 26(2), 211-219.
- Nohynek, G.J., and Schaefer, H., 2001, Benefit and Risk of Organic Ultraviolet Filters, *Regul. Toxicol. Pharmacol.*, 33, 285-299.
- O'Malley, P.J., 2002, The Reaction Profile for Hydrogen Atom Transfer from Phenol to Peroxy Free Radicals, *Chem. Phys. Lett.*, 364, 318-322.
- Oliveira, C.B.S., Meurer, Y.S.R., Oliveira, M.G., Medeiros, W.M.T.Q., Silva, F.O.N., Brito, A.C.F., Pontes, D.L., and Andrade-Neto, V.F., 2014, Com4-tive Study on the Antioxidant and Anti-Toxoplasma Activities of Vanillin and Its Resorcinarene Derivative, *Molecules.*, 19, 5898-5912.
- Osterwalder, U., and Herzog, B., *Chemistry and Properties of Organic and Inorganic UV Filters*. In: Lim, H.W., and Draelos, Z.D., 2009, *Clinical Guide to Sunscreen and Photoprotection*, Informa Healthcare USA, Inc., New York.
- Perwitasari, I., Chandra, D.K., Etnawati dan Suyoto, 1999, Peran Tabir Surya Kombinasi Sinamat dan Benzophenon pada Perubahan Warna Kulit Konstitutif Akibat Paparan UVB, *Kumpulan Jurnal Kosmetik Medik*, FKU-UGM.
- Saleh, M.A., Shavon C., Brooke W., and Suziat, A. D-S., 2010, Antioxidant and Free Radical Scavenging Activities of Essential Oils. *Ethnicity & Disease.*, 20, 78-82.
- Schrader, A., Jakupovic, J., and Baltes, W., 1994, Photochemical Studies on trans-3-methylbutyl-4-methoxycinnamate, *J. Soc. Cosmet. Chem.*, 45, 43-52.
- Shaath, N.A., *The Chemistry of Ultraviolet Filters*. In: Shaath, N.A., ed., 2005, *Sunscreens: Regulations and Commercial Development 3rd Ed*, Tylor & Francis Group, Boca Raton.
- Staberg, B., Wulf, H.C., Klemp, P., Poulsen, T., and Brodthagen, H., 1983, The Carcinogenic Effect of UVA Irradiation, *J. Invest. Dermatol.*, 81, 517-519.
- Sudarma, Made, 2009, *Kimia Bahan Alam*, FMIPA Press, Fakultas MIPA Universitas Mataram.
- Sudipta, G., Dastidar, Bharath, P., dan Arindam, R., 2011, Rayleigh Like Scattering from Silika-Titania Core Shell Particles and Their Application in Protection Against Harmful Ultraviolet Ray, *Bull. Mater. Sci.*, 34, 199-120.

- Sunarni, T., Pramono, S., dan Asmah, R., 2007, Flavonoid Antioksidan Penangkap Radikal dari Daun Kepel (*Stelechocarpus Burahol* (BI) Hook F. & Th.), *Majalah Farmasi Indonesia.*, 18(3), 111-116.
- Timmerman, P., Verboom, W., and Reindhoudt, D.N., 1996, Resorcinarenes, *Tetrahedron*, 52(8), 2663-2704.
- van Praag, M.C.G., Roza, L., Boom, B.W., Out-Luitjing, C., Henegouwen, J.B.A.B, Vermeera, B.J., and Mommas, A.M., 1993, Determination of The Photoprotective Efficacy of a Tropical Sunscreen Against UVB-Induced DNA Damage in Human Epidermis, *J. Photochem. Photobiol. B: Biol.*, 19, 129-134
- Wahyuningsih, T.D., Raharjo, T.J., and Tahir, I., 2002, Synthesis of 3,4-Dimethoxy Isoamyl Cinnamic as The Sunscreen Compound from Clove Oil and Fusel Oil, *Indones. J. Chem.*, 2(1), 55-63.
- Weinelt, F., and Schneider, H.J., 1991, Mechanism of Macrocyclic Genesis the Condensation of Resorcinol with Aldehydes, *J. Org. Chem.*, 56, 5527-5535.
- Winarno, F.G., 1984, *Kimia Pangan dan Gizi*, PT Gramedia, Jakarta.
- Winarsi, H., 2007, *Antioksidan Alami dan Radikal Bebas*, Kanisius, Yogyakarta.
- Yamin, B.M., Abosadiya, H.M., Hasbullah, S.A., and Jumina, J., 2014, Structural Antioxidant and Antiviral Studies of C-3-nitrophenylcalix[4]resorcinarene, *Int. J. Adv. Sci. Eng. Inform. Tech.*, 4(3), 1-4.